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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,560	03/27/2006	Wolfgang Haller	23496	7149

535 7590 01/08/2007  
THE FIRM OF KARL F ROSS  
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EXAMINER
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NGUYEN, PHUONGCHI T

ART UNIT	PAPER NUMBER
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2833

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/573,560		HALLER, WOLFGANG	
	<b>Examiner</b>		<b>Art Unit</b>	
	Phuongchi Nguyen		2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____                                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/04/06</u>                                                  | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a) because the detail features between the coupling and the plug are not clearly shown; the drawings maybe taken from the photographs; the black and white photographs have deleted some detail features of the invention such as the locking part between the plug and coupling in figure 3 and/or the eyes of the coupling locked into the eyes of the plug. Appropriate correction is required.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, “the plug and the coupling each have a locking part of a locking unit for fixing the plug and the coupling relative to one another” in claim 1, lines 12-14, “an annular bead and the annular shoulder is a component of the annular bead” in claim 4, line 3-4 and “the plug housing and coupling housing in the region of the seal is provided with longitudinally extending spreading gaps or openings” in claim 9, lines 3-5, “the plug housing and/or the coupling housing of metal, between it and the contact sleeve, an insulating body is inserted” in claim 11, line 3-5, “the locking part of the plug housing or the coupling housing that engages one around the other has eyes” in claim 13, lines 2-4 (the reference numeral “11” in only figure 1 is just a black dot), “the locking part of the plug housing or the coupling housing one of which is received in the other, is provided with eyes locally and spatially corresponding locking hooks” in claim 14, lines 3-5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing

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sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4, line 3, it is unclear where is the “***annular bead 5***” to be a component of the annual shoulder 6? Claim 4 is examined based on the best understood.

Claim 9, lines 3-5, it is unclear where is “longitudinally extending spreading gaps or openings” in the plug housing and coupling housing of the seal region? Claim 9 is examined based on the best understood.

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

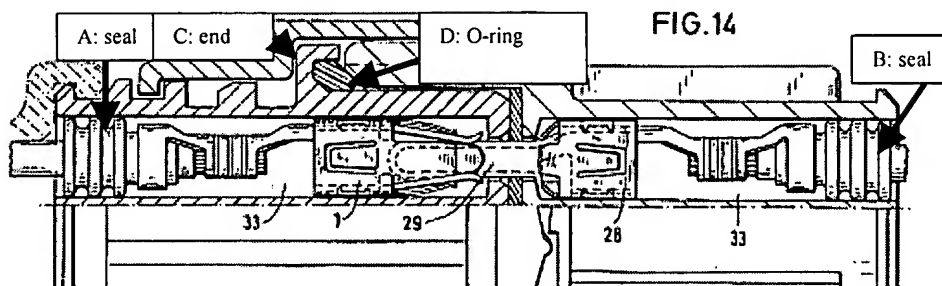
6. Claims 1, 3-5, 7, 9-10, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zinn et al (US 5437566) in view of Galizia et al (US4666227).

In regards to claims 1, 4 and 15, Zinn et al discloses (see fig. 14) a plug connector (assembly) comprised of a plug (of 34) with a plug housing (34), having at least one contact pin (29)(fig. 10), and comprised of a coupling (of 35) with a coupling housing (35) that has at least one contact sleeve (30)(fig. 1);

whereby the plug (of 34) and the contact pin (29) can be plugged at least partially into the coupling (of 35);

whereby the contact pin (29) and the contact sleeve (30) are each connectable by at least one crimp connection (3, 3) (figs. 1 and 10) with at least one cable connector of a cable (fig. 14),

whereby on the plug housing (34) and on the coupling housing (35), each respective seal (A, B) is provided against the outer jacket of the cable (see marked-up 1).



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Zinn discloses the invention generally all as claimed, but lacks a locking part and detent hook. However, Galizia et al teaches the plug (of 37) and the coupling (of 40) each have a locking part (47, 48) of a locking unit for fixing the plug (of 37) and the coupling (of 40) relative to one another, and

whereby the contact pin (3) and the contact sleeve (1), the contact sleeve (1) have at least one detent hook (19) (figs. 2 and 6) that, upon insertion of the contact pin (3) and the contact sleeve (1) in the respective plug housing (37) and the coupling housing (40), the detent hook (19) engages behind a respective shoulders (G<sub>shoulder</sub>) therein (see marked-up 2) and; the shoulder is a component of the bead (G bead).

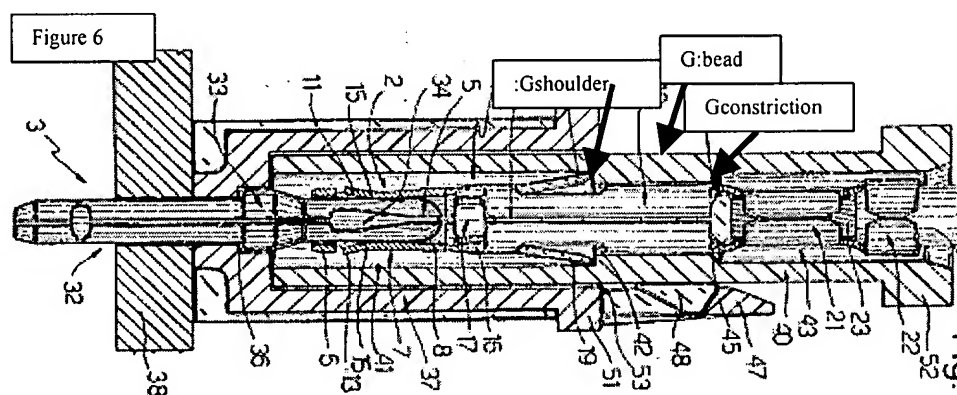


Figure 6  
C Marked-up 2

It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug connector assembly of Zinn et al by having a locking unit and at least detent hook as taught by Galizia et al for increasing the internal locking of the terminals and its housings and the outernal locking between the plug and coupling housings. "for exterior applications, especially for the electrical connection of solar panels" is not positively recited in the claim.

In regards to claim 3, Zinn discloses the invention generally all as claimed, but lacks a projection on the contact pin and a constriction on the housing. However, Galizia discloses the plug connector characterized in that the contact sleeve (1) each have a projection (45), that the coupling housing (40) has a constriction ( $G_{constriction}$ ), and that after engagement of the detent hook (19) behind the shoulder ( $G_{shoulder}$ ) the projection (45) abuts the constriction ( $G_{constriction}$ ) (see marked-up 2 above). It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug connector assembly of Zinn et al by having a projection on the contact pin and a constriction on the housing as taught by Galizia et al for preventing the contact pin moved back and forth in the housing during vibration.

In regards to claim 5, Zinn discloses the plug connector characterized in that the plug housing (34) and the coupling housing (35) have a cylindrical enlargement in the region turned toward the cable and in which the seal (A, B) is set and fixed (see marked-up 1).

In regards to claim 7, Zinn discloses the plug connector characterized in that the seal (A, B) is made in common with the plug housing (34) and the coupling housing (35) in a two component technique (a common technique is so broadly defined). Zinn discloses the invention generally all as claimed, but lacks the housings being made by plastic. It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug and coupling housings of Zinn et al to be a plastic material for protecting the housings from electric shock; since the examiner takes official Notice of the known equivalence of metal housings and the plastic housings for their use in the common art. The method of forming the seal, the plug housing and the coupling housing being made in common in a two-component technique is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been

given patentable weight.

In regards to claim 9, in view of claim 5, the seal of Zinn must have one longitudinally extending spreading gap or opening for the cable going through (marked-up 1).

In regards to claim 10, Zinn discloses the plug housing (34) and the coupling housing (35) are made from a metallic material (fig. 14). Zinn discloses the invention generally all as claimed, but lacks the noncorroding metal housings. It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug and coupling housings of Zinn et al to be a noncorroding metallic material for protecting and maintaining the housings longer; since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Le Shin*, 125 USPQ 416.

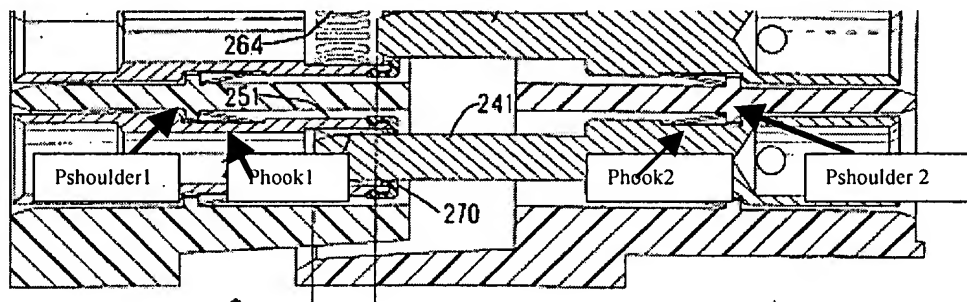
In regards to claim 11, Zinn discloses the plug connector characterized in that in the making of the plug housing (34) and/or the coupling housing (35) of metal between the plug housing (34) and/or the coupling housing (35) and the contact sleeve (30), an insulating body (32) is inserted.

In regards to claim 12, Zinn discloses the plug connector characterized in that within the plug (34) or the coupling housing (35) are provided and that at the ends (C ) turned away from the cable have sealing rings (D) that correspond to the seals (A, B) between the plug housing (34) and the coupling housing (35) and the cable (see marked-up 1).

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zinn et al (US 5437566) in view of Galizia et al (US4666227) applied as claim 1 above, and further in view of Puerner (US5588852).

In regards to claim 2, Zinn discloses the invention generally all as claimed, but lacks a detent hook on the contact pin corresponding with the shoulder on the plug housing. However, Puerner teaches the plug connector characterized in that the contact pin (141) and the contact sleeve (151) each are formed with two, preferably diametrically oppositely arranged, detent hooks (Phook1, Phook2) and the shoulder (Pshoulder1, Pshoulder 2) is configured as an annular shoulder (PD) (see marked-up 2). It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug connector assembly of Zinn et al by providing another detent hook as taught by Puerner on the contact pin for locking of the contact pin on the plug housing.

Marked-up 3 (figure 10 of Puerner)



8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zinn et al (US 5437566) in view of Galizia et al (US4666227) applied as claim 1 above, and further in view of Schrupp (US4793476).

In regards to claim 6, Zinn discloses the invention generally all as claimed, but lacks sealing adhesively bonded technique. However, Schrupp teaches the portion (41) is sealed adhesively bonded to the portion (43) (col. 3, lines 10-14). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connection in the plug assembly of Zinn et al by having a sealing adhesively bonded technique as taught by Schrupp for

having permanently connection between the contact pin/contact sleeve and the plug/coupling housings respectively.

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zinn et al (US 5437566) in view of Galizia et al (US4666227) applied as claim 1 above, and further in view of Durand-Cochet et al (US5938486).

In regards to claim 8, Zinn discloses the invention generally all as claimed, but lacks a circumferential grooves and ribs on the surface turn toward the cable. However, Durand-Cochet et al teaches the seal (36) on a (inner) surface turned toward the cable is provided with circumferential grooves and ribs and forms a kind of labyrinth seal (fig. 7). It would have been obvious to one having ordinary skill at the time the invention was made to modify the seal of Zinn et al by having circumferential grooves and ribs on the inner surface of the seal as taught by Durand-Cochet et al for increasing the compression of the seal on the cable.

10. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zinn et al (US 5437566) in view of Galizia et al (US4666227) applied as claim 1 above, and further in view of Lambert et al (US4676569)/Elliott (US6367293B1).

In regards to claims 13 and 14, Zinn discloses the invention generally all as claimed, but lacks the locking part having eyes. However, Lambert et al teach the locking part (32, 18) of the housing (14) and the coupling housing (12) (fig. 1) that engages one around the other has eyes (34, 20) at their ends turned away from the housings, preferably formed as two diametrically opposite eyes (figs. 2 and 3); and Elliott teaches the locking part (of holes on 24, 42) of the housing (24) and the coupling housing (42) (figs. 1 and 2) that engages one around the other has eyes (holes on 24, 42) at their ends turned away from the housings, preferably formed as two

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diametrically opposite eyes. It would have been obvious to one having ordinary skill at the time the invention was made to modify the plug and coupling housings of Zinn et al by having opposite eyes as taught by Lambert et al/Elliott at their ends for providing additional security on the two housings preventing loose connection between the plug and coupling housings.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchi Nguyen whose telephone number is (571) 272-2012. The examiner can normally be reached on 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571) 272-2800 ext 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PCN

January 3, 2007



**TULSIDAS C. PATEL**  
**SUPERVISORY PATENT EXAMINER**